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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---------------------|-------------|----------------------|---------------------|------------------|
| 10/664,449 | 09/20/2003 | Chen-Yu Huang | CHA9 2003 0020US1 | 4525 |
| 45095 | 7590 | 10/07/2010 | EXAMINER | |
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| | | | ART UNIT | PAPER NUMBER |
| | | | 2626 | |
| | | | NOTIFICATION DATE | DELIVERY MODE |
| | | | 10/07/2010 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOCommunications@hoffmanwarnick.com

| | | | |
|------------------------------|--------------------------------------|-------------------------------------|--|
| Office Action Summary | Application No. 10/664,449 | Applicant(s) HUANG ET AL. | |
| | Examiner LEONARD SAINT CYR | Art Unit 2626 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 -9, 11-17, 19, and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 -9, 11-17, 19, and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/29/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 07/15/10 have been fully considered but they are not persuasive.

Applicants argue that neither Corston nor Omoigui teach or suggest a semantic taxonomy...containing semantic node terms in hierarchical structure, each semantic node term identifying groups of related words...and enhancing a users keyword query entry with the semantic node term that identifies the keyword query term in the users query to create an enhanced keyword query (Amendment, pages 10 – 14).

The examiner disagrees, since Corston discloses “This lexicon includes various classes of words, such as, e.g., prepositions, conjunctions, verbs, nouns, operators and quantifiers that define syntactic and **semantic properties inherent in the words in an input string so that a parse tree can be constructed therefor**. Clearly, a logical form (or, for that matter, any other representation, such as logical form triples or logical form graph within a logical form, capable of portraying a semantic relationship) can be precomputed, while a corresponding document is being indexed, and stored, within, e.g., a record for that document, for subsequent access and use rather than being computed later once that document has been retrieved. **The semantic expansion is performed by examining each content word in the original logical form, and expanding the word to include synonyms, hypernyms, hyponyms, or other words having a semantic relation to the original content word.** For instance, logical form

Art Unit: 2626

modifiers 94 and 98 may, in one embodiment, be provided with access to a reference corpus, such as a thesaurus, a dictionary, or a computational lexicon, such as the WordNet or MindNet lexicons, in order to identify synonyms, hypernyms, hyponyms, or other semantic relationships between words to identify possible lexical paraphrase relationships between the query and document” (col.12, lines 59 – 67; col.30, lines 47 – 59).

Claim Rejections - 35 USC § 101

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 9, and 11– 16 are directed to a computer readable medium storing processor executable instructions that is not limited to a non-transitory, and thus, statutory medium. The scope of "computer-readable medium" since not defined in the specification may include signal-based mediums such as "signals used to propagate instructions", "carrier waves/pulses", etc. A signal does not fall within one of the four statutory categories of invention (*i.e., process, machine, manufacture, or composition of matter*) because it is an ephemeral, transient signal and thus is non-statutory. Since the scope of "computer-readable medium" may include these non-statutory instances,

Claims 9, and 11– 16 are directed to non-statutory subject matter. Amending the claims to recite “at least one non-transitory computer-readable storage medium” may overcome the prior art of record.

Claim Rejections - 35 USC § 102

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1, 3 - 9, 11 - 17, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Corston et al., (US PAP 6,901,399).

As per claims 1, 9, and 17, Omoigui teaches a self-enhancing search system/method for automatically providing expanded keyword searches comprising:

a semantic taxonomy stored on at least once computing device, the semantic taxonomy containing semantic node terms in a hierarchical structure, each semantic node term identifying groups of related keywords ("syntactic and semantic properties inherent to the words in an input...parse tree can be constructed therefor"; col.12, lines 59 – 64; see also figs 18, and 19);

a search system text analyzer stored on at least once computing device, wherein the search system text analyzer periodically looks through a set of documents for a database and identifies keyword terms used in each of the documents that occur in the hierarchical structure ["use natural language processing techniques in an attempt to match the semantic content of a first textual input ...a second textual input (such as documents being searched)"; col.4, lines 22 – 32];

a semantic binder stored on at least once computing device, the semantic binder for attaching a textual index to each of the documents in the set of the documents, the textual index for each of the documents including at least one semantic node term that identifies keyword terms used in the document ("a semantic relationship can be

Art Unit: 2626

precomputed, while a corresponding document is being indexed and stored...";

paragraph 12, line 60- col.13, line 3);

a relevant document finder stored on at least once computing device which automatically, without user intervention, enhances a users keyword query entry with the semantic node term that identifies the keyword query term in the users keyword query to create an enhanced keyword query, the enhanced keyword query including both the keyword query term and the semantic node term ("first performing semantic expansion of words in the original logical form...semantically expanded words, and using the original structured connection in the original logical form"; col.30, line 38 – col.31, line 17); and

based on the enhanced keyword query locates documents in the set of documents that contain a match for the keyword query term and documents in the set of documents that do not contain a match for the keyword query term in the user's keyword query but contain other keyword search terms that are linked to the keyword query term by the semantic node term identifying the keyword query term to thereby increase the number of documents returned to the user ("first performing semantic expansion of words in the original logical form...semantically expanded words, and using the original structured connection in the original logical form...this technique tends to retain relevant documents that are returned based on the query"; col.30, line 38 – col.31, line 67)

As per claims 3, 11, and 19, Corston et al., further disclose a semantic dictionary which defines user keyword query terms in user's query in accordance with the semantic nodes in a semantic dictionary ("a dictionary...in order to identify synonyms, hypernyms, hyponyms, or other semantic relationships between words";col.30, lines 46 – 59).

As per claims 4, 12, and 20, Corston et al., further disclose a semantic dictionary builder which systematically examines the system log off line new keyword queries to increase the terms in the semantic dictionary and associate them with one or more semantic nodes ("examining each content word in the original logical form...a dictionary...in order to identify synonyms, hypernyms, hyponyms, or other semantic relationships between words";col.30, lines 46 – 59).

As per claims 5, and 13, Corston et al., further suggest ranking the results of searches using the enhanced queries to place terms in the semantic dictionary in order of most often used keyword query terms to reduce table lookup time (determining the scores based on similarity and ranking the documents based on highest scores suggests placing terms in the semantic dictionary in order of most often used keyword query terms; col.1, lines 65 – 67; col.8, lines 23 - 27).

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 6 - 8, 14 - 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corston et al., (US PAP 6,901,399) in view of Omoigui (US PAP 2003/0126136).

As per claims 6, and 14, Corston et al., further that the semantic dictionary binder includes:

a submodule that finds other statistically close terms to the identified keyword query terms ("score of each such document"; col.1, lines 65 – 67; col.8, lines 23 - 27).

a submodule that finds synonyms and related terms for the identified keyword query terms, using thesaurus ("a thesaurus, a dictionary...in order to identify synonyms, hypernyms, hyponyms, or other semantic relationships between words"; col.30, lines 46 – 59).

However, Corston et al., do not specifically teach a sub-module that identifies domain specific terms in a given keyword query, using domain specific glossary; a submodule that identifies relevant domain specific categories for the identified keyword terms, using domain specific ontology.

Omoigui discloses the server includes a second server component that hosts domain-specific information that is used to classify and categorize semantic information. The first and second server components work together and may be physically integrated or separate (paragraphs 71, and 258).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use domain-specific information as taught by Omoigui in Corston et al., because that would provide better search engine capabilities (paragraph 263, lines 1 – 3).

As per claims 7, and 15, Corston et al., in view of Omoigui further disclose a submodule that binds keyword queries in the identified semantic taxonomy categories, using the results of the text analyzer (Omoigui; “ontology and categories corresponding to taxonomy for each semantic domain ... responds to semantic queries”; paragraph 670, lines 8 – 11).

As per claims 8, and 16, Corston et al., in view of Omoigui further disclose a submodule that adds new doc-query links to the meta-data of the corresponding textual index entries to link the documents to the semantic node terms in the hierarchical structure (Omoigui; “adding, removing and updating entries in the semantic metadata store”; paragraph 248; paragraph 269; paragraph 670, lines 8 – 11; paragraph 582).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD SAINT CYR whose telephone number is (571) 272-4247. The examiner can normally be reached on Mon- Friday.

Art Unit: 2626

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866)-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or (571)-272-1000.

/Leonard Saint-Cyr/

Examiner, Art Unit 2626